Claims:

1. A system to join an actuator element to a slider element comprising:

a slider element adapted to be coupled to an actuator element having a generally 'U'-shaped structure, the 'U'-shaped structure being formed by at least a first arm joined at one end to an actuator base and a second arm joined at one end to said actuator base, said first arm having a first raised portion of a first contour and said second arm having a second raised portion of a second contour generally opposing in direction and generally parallel to said first surface;

said slider element having a first surface with a first recessed portion contoured to accept, for non-rotatable coupling, said first raised portion and a second surface with a second recessed portion contoured to accept, for non-rotatable coupling, said second raised portion; wherein

said first raised portion is to bond within said first recessed portion by a bonding agent; and

said second raised portion is to bond within said second recessed portion by said bonding agent.

2. The system of claim 1, wherein the actuator element is a micro-actuator and the slider element is a side step slider.

3. The system of claim 2, wherein the micro-actuator is a piezoelectric micro-actuator.

4. The system of claim 3, wherein the bonding agent is epoxy.

5. The system of claim 4, wherein the contours of said first raised portion with said first recessed portion and the contours of said second raised portion with said second recessed portion prevent rotational movement of the slider during a curing process of said epoxy.

6. A system to join an actuator element to a slider element comprising:

a slider element adapted to be coupled to an actuator element having a generally 'U'-shaped structure, the 'U'-shaped structure being formed by at least a first arm joined at one end to an actuator base and a second arm joined at one end to said actuator base and generally parallel to said first arm;

said slider element having a first recessed planar surface forming a first step and a second recessed planar surface forming a second step generally parallel and generally opposite in direction from the first step to accept for non-rotatable coupling said actuator, the first step accepting the first arm and the second step accepting the second arm; wherein

said first arm is to bond within said first step by a bonding agent; and

said second arm is to bond within said second step by said bonding agent.

7. The system of claim 6, wherein the actuator element is a micro-actuator and the slider element is a side step slider.

8. The system of claim 7, wherein the micro-actuator is a piezoelectric micro-actuator.

9. The system of claim 8, wherein the bonding agent is epoxy.

10. The system of claim 9, wherein the first step accepts the first arm and the second step accepts the second arm to prevent rotational movement of the slider during a curing process of said epoxy.

11. The system of claim 10, wherein said slider has a third recessed planar surface forming a third step that is generally perpendicular to the first and second steps.

12. The system of claim 11, wherein said slider has said third recessed planar surface forming said third step to reduce slider weight.

13. A system to join an actuator element to a slider element comprising:

a slider element adapted to be coupled to an actuator element having a generally 'U'-shaped structure, the 'U'-shaped structure being formed by at least a first arm joined at one end to an actuator base and a second arm joined at one end to said actuator base, said first arm having a first bonding surface and said second arm having a second bonding surface that is generally opposing in direction and generally parallel to said first surface;

said slider element having a first bonding surface with a first recessed portion contoured to partially butt said first arm bonding surface and to provide a partial cleft with said first arm bonding surface; wherein

said first slider bonding surface is to bond with said first arm bonding surface; and

said second slider bonding surface is to bond with said second arm bonding surface.

14. The system of claim 13, wherein the actuator element is a micro-actuator and the slider element is a side step slider.

15. The system of claim 14, wherein the micro-actuator is a piezoelectric micro-actuator.

16. The system of claim 15, wherein the bonding agent is epoxy.

17. The system of claim 16, wherein said first slider bonding surface partially butts said first arm bonding surface, providing said partial cleft, and said second slider bonding surface partially butts said second arm bonding surface, providing said partial cleft, to prevent epoxy overflow.

18. A method to join an actuator element to a slider element comprising:

adapting a slider element to be coupled to an actuator element having a generally 'U'-shaped structure, the 'U'-shaped structure being formed by at least a first arm joined at one end to an actuator base and a second arm joined at one end to said actuator base, said first arm having a first raised portion of a first contour and said second arm having a second raised portion of a second design generally opposing in direction and generally parallel to said first surface;

adapting said slider element to have a first surface with a first recessed portion contoured to accept, for non-rotatable coupling, said first raised portion and a second surface with a second recessed portion contoured to accept for non-rotate-able coupling said second raised portion;

bonding within said first recessed portion said first raised portion by a bonding agent; and

bonding within said second recessed portion said second raised portion by said bonding agent.

19. The method of claim 18, wherein the actuator element is a micro-actuator and the slider element is a side step slider.

20. The method of claim 19, wherein the micro-actuator is a piezoelectric micro-actuator.

21. The method of claim 20, wherein the bonding agent is epoxy.

22. The method of claim 21, wherein the contours of said first raised portion with said first recessed portion and the contours of said second raised portion with said second recessed portion prevent rotational movement of the slider during a curing process of said epoxy.

23. The method of claim 18, wherein said slider is generally box-shaped and is formed with said first and second recessed portions by:

cutting a rectangular-surfaced large bar of a slider material in a direction perpendicular to the length of said large bar to form a rectangular-surfaced small bar, the length for which is perpendicular to said length of said large bar;

cutting a prescribed depth lengthwise along a first surface of the small bar to form said first recessed portion and cutting said prescribed depth lengthwise along a second surface of the small bar to form said second recessed portion, said second surface being generally parallel to said first surface; and

cutting the small bar perpendicular to the length of the small bar.

24. A method to join an actuator element to a slider element comprising:

adapting a slider element to be coupled to an actuator element having a generally 'U'-shaped structure, the 'U'-shaped structure being formed by at least a first arm joined at one end to an actuator base and a second arm joined at one end to said actuator base and generally parallel to said first arm;

adapting said slider element to have a first recessed planar surface to form a first step and a second recessed planar surface to form a second step generally parallel and generally opposite in direction from the first step to accept, for non-rotatable coupling, said actuator, the first step to accept the first arm and the second step to accept the second arm;

bonding within said first step said first arm by a bonding agent; and

bonding within said second step said second arm by said bonding agent.

25. The method of claim 24, wherein the actuator element is a micro-actuator and the slider element is a side step slider.

26. The method of claim 25, wherein the micro-actuator is a piezoelectric micro-actuator.

27. The method of claim 26, wherein the bonding agent is epoxy.

28. The method of claim 27, wherein the first step accepts the first arm and the second step accepts the second arm to prevent rotational movement of the slider during a curing process of said epoxy.

29. The method of claim 28, wherein said slider has a third recessed planar surface forming a third step that is generally perpendicular to the first and second steps.

30. The method of claim 29, wherein said slider has said third recessed planar surface forming said third step to reduce slider weight.

31. The method of claim 24, wherein said slider is generally box-shaped and is formed with said first and second steps by:

cutting a groove to a prescribed depth with a tool of a first cutting width a rectangular-surfaced bar of a slider material in a direction perpendicular to the length of said bar at a location; and

cutting through said bar in a direction perpendicular to the length at said location with a tool of a cutting width less than said first cutting width.

32. The method of claim 30, wherein said slider is generally box-shaped and is formed with said first, second, and third steps by:

cutting to a depth with a tool of a first cutting width a rectangular-surfaced bar of a slider material in a direction parallel to the length of said bar;

cutting a groove to a depth with a tool of a second cutting width said bar in a direction perpendicular to the length of said bar at a location; and

cutting through said bar in said direction perpendicular to the length at said location with a tool of a cutting width less than said second cutting width.

33. A method to join an actuator element to a slider element comprising:

a slider element adapted to be coupled to an actuator element having a generally 'U'-shaped structure, the 'U'-shaped structure being formed by at least a first arm joined at one end to an actuator base and a second arm joined at one end to said actuator base, said first arm having a first bonding surface and said second arm having a second bonding surface that is generally opposing in direction and generally parallel to said first surface;

said slider element having a first bonding surface with a first recessed portion contoured to partially butt said first arm bonding surface and to provide a partial cleft with said first arm bonding surface; wherein

said first slider bonding surface is to bond with said first arm bonding surface; and

said second slider bonding surface is to bond with said second arm bonding surface.

34. The method of claim 33, wherein the actuator element is a micro-actuator and the slider element is a side step slider.

35. The method of claim 34, wherein the micro-actuator is a piezoelectric micro-actuator.

36. The method of claim 35, wherein the bonding agent is epoxy.

37. The method of claim 36, wherein said first slider bonding surface partially butts said first arm bonding surface, providing said partial cleft, and said second slider bonding surface partially butts said second arm bonding surface, providing said partial cleft, to prevent epoxy overflow.

38. The method of claim 32, wherein said slider is generally box-shaped and is formed by:

cutting a slot in a bar of a prescribed length perpendicular to the length of said bar at a location and to a prescribed depth with a tool of a first cutting width, said bar being rectangular-surfaced; and

cutting through said bar in said direction perpendicular to the length at said location with a tool of a cutting width less than said first cutting width.